

What is claimed is:

1           1.       A system for providing feedback to an individual patient for  
2       automated remote patient care, comprising:  
3           a medical device regularly recording a set of measures by a medical device  
4       having a sensor for monitoring at least one physiological measure of an individual  
5       patient, the collected measures set comprising individual measures which each  
6       relate to patient information recorded by the medical device;  
7           a remote client processing voice feedback into a set of quality of life  
8       measures which each relate to patient self-assessment indicators, the voice  
9       feedback having been spoken by the individual patient into a remote client  
10      substantially contemporaneous to the collection of an identifiable device measures  
11      set;  
12           a database collecting the set of measures from the medical device by  
13      storing the collected measures set, the identified collected device measures set and  
14      the quality of life measures set into a patient care record for the individual patient  
15      within a database organized to store one or more patient care records which each  
16      comprise a plurality of the collected measures sets, the identified collected device  
17      measures set and the quality of life measures set;  
18           a server periodically receiving the identified collected device measures set  
19      and the quality of life measures set from the medical device, and analyzing the  
20      identified collected device measures set, the quality of life measures set, and one  
21      or more of the collected device measures sets in the patient care record for the  
22      individual patient relative to one or more other collected device measures sets  
23      stored in the database to determine a patient status indicator.

1           2.       A system according to Claim 1, further comprising:  
2           the server repeatedly receiving one or more collected measures sets which  
3       are each recorded by a sensor which monitors at least one physiological measure  
4       of the individual patient, each such sensor monitoring a site within the individual  
5       patient unique from the site monitored by any other such sensor, and analyzing  
6       one or more of the site specific collected measures sets in the patient care record

7 for each site within the individual patient relative to one or more other site  
8 specific collected measures sets stored in the database to determine a patient  
9 status indicator; and  
10 the database storing each collected measures set organized by specific site  
11 into the patient care record for the individual patient within the database.

1 3. A system according to Claim 2, wherein the one or more site  
2 specific collected measures sets and the one or more other site specific collected  
3 measures sets both store measures collected from the same relative site.

1 4. A system according to Claim 2, wherein the one or more site  
2 specific collected measures sets and the one or more other site specific collected  
3 measures sets both store measures collected from a different site.

1 5. A system according to Claim 1, the remote client further  
2 comprising:  
3 an audio prompter requesting a quality of life measure via a voice prompt  
4 played on the remote client to the individual patient.

1 6. A system according to Claim 5, further comprising:  
2 a written script comprising a plurality of quality of life measure requests  
3 stored within the remote client; and  
4 the audio prompter further comprising a speech synthesizer module  
5 retrieving each quality of life request from the stored written script with each such  
6 retrieved quality of life measure request comprising one such voice prompt and  
7 synthesizing speech for playback from the retrieved quality of life request.

1 7. A system according to Claim 5, further comprising:  
2 pre-recorded speech comprising a plurality of quality of life measure  
3 requests stored within the remote client; and  
4 the audio prompter further comprising a playback module retrieving each  
5 quality of life request from the stored pre-recorded speech with each such

6 retrieved quality of life measure request comprising one such voice prompt and  
7 playing the pre-recorded speech from the retrieved quality of life request.

1           8.       A system according to Claim 1, the remote client further  
2 comprising:  
3           a speech engine recognizing individual words in the spoken voice  
4 feedback and translating the individual spoken words into written individual  
5 words.

1           9.       A system according to Claim 8, further comprising:  
2           a voice grammar stored within the remote client, the voice grammar  
3 comprising a plurality of speech phrases expressed in a natural language, each  
4 speech phrase corresponding to a normalized quality of life measure;  
5           the speech engine further comprising:  
6                 a parser parsing the written individual words into tokens; and  
7                 a lexical analyzer performing a lexical analysis of the parsed  
8 tokens in accordance with the voice grammar to identify one such normalized  
9 quality of life measure.

1           10.      A system according to Claim 8, further comprising:  
2           a vocabulary stored within the remote client, the vocabulary comprising  
3 the written individual words; and  
4           the speech engine further comprising a lookup module performing  
5 a lookup of the written individual words from the vocabulary stored within the  
6 remote client.

1           11.      A system according to Claim 1, the remote client further  
2 comprising:  
3           wherein the remote client comprises at least one of a personal computer,  
4 an audio interface, and a telephony instrument.

1           12.      A method for providing feedback to an individual patient for  
2 automated remote patient care, comprising:

3           regularly recording a set of measures by a medical device having a sensor  
4   for monitoring at least one physiological measure of an individual patient, the  
5   measures set comprising individual measures which each relate to patient  
6   information recorded by the medical device;  
7           collecting the measures set from the medical device;  
8           processing voice feedback into a set of quality of life measures which each  
9   relate to patient self-assessment indicators, the voice feedback having been  
10   spoken by the individual patient into a remote client substantially  
11   contemporaneous to the collection of an identifiable device measures set;  
12          storing the collected measures set, the identified collected device measures  
13   set and the quality of life measures set into a patient care record for the individual  
14   patient within a database organized to store one or more patient care records  
15   which each comprise a plurality of the collected measures sets, the identified  
16   collected device measures set and the quality of life measures set;  
17          periodically receiving the identified collected device measures set and the  
18   quality of life measures set from the medical device;  
19          analyzing the identified collected device measures set, the quality of life  
20   measures set, and one or more of the collected device measures sets in the patient  
21   care record for the individual patient relative to one or more other collected  
22   device measures sets stored in the database to determine a patient status indicator.

1           13.    A method according to Claim 12, further comprising:  
2           repeatedly receiving one or more collected measures sets which are each  
3   recorded by a sensor which monitors at least one physiological measure of the  
4   individual patient, each such sensor monitoring a site within the individual patient  
5   unique from the site monitored by any other such sensor;  
6           storing each collected measures set organized by specific site into the  
7   patient care record for the individual patient within the database; and  
8           analyzing one or more of the site specific collected measures sets in the  
9   patient care record for each site within the individual patient relative to one or  
10   more other site specific collected measures sets stored in the database to  
11   determine a patient status indicator.

1           14.     A method according to Claim 13, wherein the one or more site  
2 specific collected measures sets and the one or more other site specific collected  
3 measures sets both store measures collected from the same relative site.

1           15.     A method according to Claim 13, wherein the one or more site  
2 specific collected measures sets and the one or more other site specific collected  
3 measures sets both store measures collected from a different site.

1           16.     A method according to Claim 12, the operation of processing voice  
2 feedback further comprising:  
3           requesting a quality of life measure via a voice prompt played on the  
4 remote client to the individual patient.

1           17.     A method according to Claim 16, the operation of requesting a  
2 quality of life measure further comprising:  
3           storing a written script comprising a plurality of quality of life measure  
4 requests within the remote client;  
5           retrieving each quality of life request from the stored written script with  
6 each such retrieved quality of life measure request comprising one such voice  
7 prompt; and  
8           synthesizing speech for playback from the retrieved quality of life request.

1           18.     A method according to Claim 16, the operation of requesting a  
2 quality of life measure further comprising:  
3           storing pre-recorded speech comprising a plurality of quality of life  
4 measure requests within the remote client;  
5           retrieving each quality of life request from the stored pre-recorded speech  
6 with each such retrieved quality of life measure request comprising one such  
7 voice prompt; and  
8           playing the pre-recorded speech from the retrieved quality of life request.

1           19.     A method according to Claim 12, the operation of processing voice  
2 feedback further comprising:

3 recognizing individual words in the spoken voice feedback; and  
4 translating the individual spoken words into written individual words.

1 20. A method according to Claim 19, further comprising:  
2 storing a voice grammar within the remote client, the voice grammar  
3 comprising a plurality of speech phrases expressed in a natural language, each  
4 speech phrase corresponding to a normalized quality of life measure;  
5 parsing the written individual words into tokens; and  
6 performing a lexical analysis of the parsed tokens in accordance with the  
7 voice grammar to identify one such normalized quality of life measure.

1 21. A method according to Claim 19, further comprising:  
2 storing the written individual words as a vocabulary within the remote  
3 client; and  
4 performing a lookup of the written individual words from the vocabulary  
5 stored within the remote client.

1 22. A method according to Claim 12, wherein the remote client  
2 comprises at least one of a personal computer, an audio interface, and a telephony  
3 instrument.

1 23. A computer-readable storage medium holding code for providing  
2 feedback to an individual patient for automated remote patient care, comprising:  
3 code for regularly recording a set of measures by a medical device having  
4 a sensor for monitoring at least one physiological measure of an individual  
5 patient, the collected measures set comprising individual measures which each  
6 relate to patient information recorded by the medical device;  
7 code for collecting the set of measures from the medical device;  
8 code for processing voice feedback into a set of quality of life measures  
9 which each relate to patient self-assessment indicators, the voice feedback having  
10 been spoken by the individual patient into a remote client substantially  
11 contemporaneous to the collection of an identifiable device measures set;

12           code for storing the collected measures set, the identified collected device  
13 measures set and the quality of life measures set into a patient care record for the  
14 individual patient within a database organized to store one or more patient care  
15 records which each comprise a plurality of the collected measures sets, the  
16 identified collected device measures set and the quality of life measures set;  
17           code for periodically receiving the identified collected device measures set  
18 and the quality of life measures set from the medical device;  
19           code for analyzing the identified collected device measures set, the quality  
20 of life measures set, and one or more of the collected device measures sets in the  
21 patient care record for the individual patient relative to one or more other  
22 collected device measures sets stored in the database to determine a patient status  
23 indicator.

1           24.     A storage medium according to Claim 23, further comprising:  
2           code for repeatedly receiving one or more collected measures sets which  
3 are each recorded by a sensor which monitors at least one physiological measure  
4 of the individual patient, each such sensor monitoring a site within the individual  
5 patient unique from the site monitored by any other such sensor;  
6           code for storing each collected measures set organized by specific site into  
7 the patient care record for the individual patient within the database; and  
8           code for analyzing one or more of the site specific collected measures sets  
9 in the patient care record for each site within the individual patient relative to one  
10 or more other site specific collected measures sets stored in the database to  
11 determine a patient status indicator.

1           25.     A storage medium according to Claim 24, wherein the one or more  
2 site specific collected measures sets and the one or more other site specific  
3 collected measures sets both store measures collected from the same relative site.

1           26.     A storage medium according to Claim 24, wherein the one or more  
2 site specific collected measures sets and the one or more other site specific  
3 collected measures sets both store measures collected from a different site.

1           27.     A storage medium according to Claim 23, the operation of  
2     processing voice feedback further comprising:  
3           code for requesting a quality of life measure via a voice prompt played on  
4     the remote client to the individual patient.

1           28.     A storage medium according to Claim 27, the operation of  
2     requesting a quality of life measure further comprising:  
3           code for storing a written script comprising a plurality of quality of life  
4     measure requests within the remote client;  
5           code for retrieving each quality of life request from the stored written  
6     script with each such retrieved quality of life measure request comprising one  
7     such voice prompt; and  
8           code for synthesizing speech for playback from the retrieved quality of life  
9     request.

1           29.     A storage medium according to Claim 27, the operation of  
2     requesting a quality of life measure further comprising:  
3           code for storing pre-recorded speech comprising a plurality of quality of  
4     life measure requests within the remote client;  
5           code for retrieving each quality of life request from the stored pre-  
6     recorded speech with each such retrieved quality of life measure request  
7     comprising one such voice prompt; and  
8           code for playing the pre-recorded speech from the retrieved quality of life  
9     request.

1           30.     A storage medium according to Claim 23, the operation of  
2     processing voice feedback further comprising:  
3           code for recognizing individual words in the spoken voice feedback; and  
4           code for translating the individual spoken words into written individual  
5     words.

1           31.     A storage medium according to Claim 30, further comprising:



2           code for storing a voice grammar within the remote client, the voice  
3   grammar comprising a plurality of speech phrases expressed in a natural  
4   language, each speech phrase corresponding to a normalized quality of life  
5   measure;  
6           code for parsing the written individual words into tokens; and  
7           code for performing a lexical analysis of the parsed tokens in accordance  
8   with the voice grammar to identify one such normalized quality of life measure.

1           32.    A storage medium according to Claim 30, further comprising:  
2           code for storing the written individual words as a vocabulary within the  
3   remote client; and  
4           code for performing a lookup of the written individual words from the  
5   vocabulary stored within the remote client.